INFORMATION ASYMMETRY AND SAY-ON-PAY ABSTENTION VOTES

Ayishat Omar [*], Yu Cong [**], Alex Tang [**]

[*] *Corresponding author*, Department of Accounting and Finance, Rohrer College of Business, Rowan University, Glassboro, USA
Contact details: Department of Accounting and Finance, Rohrer College of Business, Rowan University, 201 Mullica Hill Road, Glassboro, NJ 08021, USA
[**] Department of Accounting and Finance, Earl G. Graves School of Business and Management, Morgan State University, Baltimore, USA

OPEN ACCESS

How to cite this paper: Omar, A., Cong, Y., & Tang, A. (2024). Information asymmetry and say-on-pay abstention votes. *Corporate Governance and Sustainability Review, 8*(3), 21–35.
https://doi.org/10.22495/cgsrv8i3p2

ISSN Online: 2519-898X
ISSN Print: 2519-8971

Received: 21.05.2024
Accepted: 31.10.2024

JEL Classification: G30, G32, G34, M40, M41
DOI: 10.22495/cgsrv8i3p2

Abstract

Analyzing say-on-pay (SOP) data from 2011 to 2015 and using an initial sample of 4,393 firms and 12,644 firm-year observations, we investigate the impact of information asymmetry on SOP abstention. Drawing on agency theory and rational apathy principles, we estimate regression models and find a positive association between information asymmetry and SOP abstention. We contribute to the literature by adding additional mediation analyses. Our mediation analyses reveal that institutional ownership mediates this relationship, suggesting that higher information asymmetry leads to reduced institutional ownership, subsequently contributing to SOP abstention. However, analyst following does not exhibit a significant mediating effect. These findings illuminate the interplay between information asymmetry, shareholder behavior, and the mediating role of institutional ownership in the context of executive compensation governance. Our research highlights the significance of addressing information disparities for improved shareholder engagement and decision-making in corporate governance. Additionally, this study's findings are relevant to academics, policymakers, and corporate stakeholders seeking to bolster corporate governance practices and strengthen shareholder participation in executive compensation matters.

Keywords: Corporate Governance, Information Asymmetry, Say-on-Pay Abstention

Authors' individual contribution: Conceptualization — A.O.; Methodology — A.O.; Formal Analysis — A.O.; Investigation — A.O., Y.C., and A.T.; Data Curation — A.O and Y.C.; Writing — Original Draft — A.O.; Writing — Review & Editing — A.O., Y.C., and A.T.; Supervision — A.T., Y.C., and A.O.; Project Administration — A.O., Y.C., and A.T.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

The say-on-pay (SOP) initiative, introduced as part of the Dodd-Frank Act in 2010, represents a critical tool in modern corporate governance (Securities and Exchange Commission [SEC], 2011). It allows shareholders to vote on executive compensation policies, offering an advisory role to influence decisions related to chief executive officer (CEO) pay and overall compensation strategies (SEC, 2011). This initiative aims to foster accountability, enhance shareholder value, and improve compensation policies by engaging shareholders in decision-making processes (Semler-Brossy, 2016). Through SOP votes, shareholders can approve, dissent, or abstain from voting on executive compensation packages, ensuring that their interests are reflected in the firm's governance practices.

While extensive research has explored SOP's effects on voting outcomes, particularly factors driving shareholder approval or dissent, less attention has been paid to the reasons behind shareholder abstention during these votes (Stathopoulos & Voulgaris, 2016). This study seeks to address this gap by investigating how information asymmetry — the unequal distribution of information between shareholders and the board of directors — affects shareholders' decisions to abstain from voting on executive compensation.

Existing research on SOP has predominantly focused on factors influencing voting outcomes such as prior compensation levels and firm performance (Balsam et al., 2016; Conyon & Sadler, 2010; Kimbro & Xu, 2016), the characteristics of compensation committees (Omar et al., 2021), and the recommendations of proxy advisors (Ertimur et al., 2013), among others. Furthermore, corporate governance research has examined the repercussions of disapproval votes on firm performance, CEO risk-taking behavior, turnover, and subsequent compensation adjustments (Alissa, 2015; Balsam et al., 2016; Ferri & Maber, 2013, Omar et al., 2022). However, a significant gap persists in understanding why shareholders abstain from voting, particularly in the context of SOP.

Shareholders often face an information disadvantage when voting on executive compensation policies. The board of directors typically has more in-depth knowledge of the firm's competitive position, performance, alternative compensation structures, and CEO preferences (Aaen & Lueg, 2022; Banyi & Bull Schaefer, 2022; Myers, 2011). Information asymmetry, where shareholders lack the same level of insight as the board, exacerbates this challenge. Though regulatory mandates, proxy advisors, and media reports aim to reduce these information gaps, achieving complete parity remains elusive, as acquiring information is costly (Myers, 2011). This disparity raises important questions about shareholders' ability to make informed judgments, especially in cases where abstention rates are high (Schouten, 2010).

Given the imbalance in information between shareholders and the board of directors (Yu, 2006), this study seeks to answer the following research question:

RQ: How is information asymmetry associated with shareholders' abstention during SOP votes?

To address this, the study draws on two key theoretical frameworks: agency theory and rational apathy theory. Agency theory posits that shareholders are at a disadvantage due to the board's superior access to company information, which can lead to hesitant voting behavior, including abstention (Brennan & Solomon, 2008; Bushman & Smith, 2001; Feddersen & Pesendorfer, 1996, 1999; Healy et al., 1999; Healy & Palepu, 2001; Jensen & Meckling, 1976). Similarly, rational apathy theory suggests that if the costs of acquiring information and voting outweigh the perceived benefits, shareholders may opt not to vote (Fairfax, 2009). These theories provide a foundation for hypothesizing that higher information asymmetry increases the likelihood of SOP abstention.

In addition to examining the direct relationship between information asymmetry and SOP abstention, this study explores two key channels through which this asymmetry operates: analyst coverage (Yu, 2008) and institutional ownership (Appel et al., 2016; Brav et al., 2008; Stathopoulos & Voulgaris, 2016). Analyst coverage, a key source of information for shareholders, may decrease when a firm exhibits higher information asymmetry, thereby heightening shareholder uncertainty (Yu, 2008). Likewise, institutional ownership, which provides shareholders with access to more detailed firm-specific information, tends to decrease as information asymmetry rises (Appel et al., 2016; Stathopoulos & Voulgaris, 2016). By investigating these channels, this study aims to provide a deeper understanding of how information asymmetry influences shareholder voting behavior.

To empirically test our hypotheses, the study analyzes SOP voting data from 2011 to 2015, the period immediately following the SOP mandate. Information asymmetry is measured using bid-ask spreads[1] (Leuz & Verrecchia, 2000) and Amihud illiquidity[2] (Goyenko et al., 2009) both of which capture market-based indicators of information flow. SOP abstention is calculated as the percentage of shareholders who abstain from voting during annual meetings. Additionally, the mediating effects of analyst coverage and institutional ownership are examined to determine their roles in shaping the relationship between information asymmetry and abstention behavior.

Our findings reveal a positive association between information asymmetry and SOP abstention votes, suggesting that increased information disparities lead to higher abstention rates. This indicates that shareholders strategically respond to their information disadvantages. Furthermore, our supplementary analysis identifies a partial mediating effect of institutional ownership on the relationship between information asymmetry and SOP abstention. This underscores the importance of institutional ownership as a mechanism through which information asymmetry shapes shareholders' voting behavior, while analyst coverage does not exhibit a significant mediation effect.

Consequently, this study makes the following contribution to existing literature. First, it addresses a critical gap by examining the role of information asymmetry in SOP abstention, which has been largely overlooked in corporate governance research. Second, it tests the relevance of agency theory and rational apathy theory in the context of SOP voting, providing empirical evidence of how information disadvantages influence shareholder behavior. Third, the study explores the mediating roles of analyst coverage and institutional ownership, offering new insights into how these factors shape the relationship between information asymmetry and voting outcomes. Fourth, the findings of this study have practical implications for corporate boards and policymakers, highlighting the importance of transparency and improved disclosure practices to mitigate the effects of information asymmetry and encourage active shareholder engagement in governance matters.

This study contributes to the understanding of how information asymmetry impacts shareholder voting behavior, particularly in terms of abstention. In doing so, it provides valuable insights into the limitations of shareholders' participation in governance when faced with information disadvantages. Furthermore, the findings underscore the need for greater transparency in corporate

[1] Bid-ask spread: This is the percentage spread for a stock at a time. We calculate it as follows: *Spread = (ask - bid) / ((ask + bid) / 2))*, where *ask* is the ask price and *bid* is the bid price. The spread measures the total amount that traders pay to market makers for providing them with liquidity (Leuz & Verrecchia, 2000).

[2] Amihud illiquidity: This is the ratio of the absolute value of daily stock return to the dollar trading volume on that day:
Amihud illiquidity = Average (|r_t| / V_t), where r_t is the stock return on day *t* and *Vt* is the dollar volume on day *t*. We calculate the average over all-positive volume days because the ratio is undefined for days with zero-volume (Goyenko et al., 2009).

disclosure practices and offer guidance for policymakers seeking to enhance the effectiveness of SOP as a governance mechanism.

The rest of the study is organized as follows. Section 2 presents the prior literature and hypotheses. Section 3 describes the research methodology. Section 4 presents the empirical results and discussion. Section 5 provides the additional analysis. Section 6 concludes the study.

2. LITERATURE REVIEW

2.1. SOP provision and its global adoption

The SOP provision, introduced to improve corporate governance and increase shareholder influence over executive compensation, has gained significant traction globally since its early adoption in the UK in the early 2000s (Cai & Walkling, 2011). Initially implemented by London Stock Exchange-listed companies in 2002, SOP quickly spread to other countries, such as Australia and Sweden, with variations in the Netherlands and Norway (Cai & Walkling, 2011). In the U.S., SOP emerged through shareholder proposals in 2006, backed by the American Federation of State, County, and Municipal Employees (AFSCME). These efforts culminated in the SOP's inclusion in the 2011 Dodd-Frank Wall Street Reform and Consumer Protection Act, granting shareholders non-binding votes on executive compensation.

SOP functions as a nonbinding shareholder resolution, providing shareholders with a voice on executive compensation practices. It is touted for enhancing corporate accountability, transparency, and the alignment of executive pay with company performance and shareholder interests (Alissa, 2015; Chu et al., 2021; Lozano-Reina et al., 2022; Lozano-Reina & Sánchez-Marín, 2020; Stathopoulos & Voulgaris, 2016). However, despite its purported benefits, SOP has faced criticism, especially in instances where dissenting votes result in revisions to executive pay packages (Kimbro & Xu, 2016). While proponents argue SOP encourages fairness and better alignment of incentives, critics highlight potential disruptions to compensation contracts, arguing that shareholder involvement may sometimes undermine effective compensation structures (Kimbro & Xu, 2016).

2.2. Shareholder voting behavior and SOP abstention

Research into SOP voting has mainly focused on the factors influencing shareholder approval or dissent regarding executive compensation. Shareholder dissatisfaction with excessive compensation often results in dissenting votes (Alissa, 2015; Gregory-Smith et al., 2014), with voting outcomes affected by prior compensation levels and firm performance (Balsam et al., 2016; Conyon & Sadler, 2010; Kimbro & Xu, 2016), characteristics of the compensation committee (Omar et al., 2021), and recommendations from proxy advisors (Ertimur et al., 2013), among others. Consequences of SOP disapproval, such as firm performance impact, CEO risk-taking behavior, CEO turnover, and subsequent CEO compensation adjustments (Alissa, 2015; Balsam et al., 2016; Baixauli-Soler et al., 2021; Ferri & Maber, 2013; Gregory-Smith et al., 2014; Omar et al., 2022) have also been widely studied. However, some research, such as Armstrong et al. (2013), find little evidence that shareholder dissent significantly alters subsequent executive pay practices.

A relatively underexplored area within the SOP literature is the phenomenon of shareholder abstention. Abstention represents a distinct shareholder response, with unique implications for corporate governance and compensation outcomes. Understanding why shareholders choose abstention, rather than approval or dissent, can illuminate broader governance dynamics, particularly those driven by information asymmetry (Feddersen & Pesendorfer, 1996, 1999).

2.3. Information asymmetry and shareholder abstention

The concept of information asymmetry, central to agency theory, offers a critical lens for understanding shareholder abstention in SOP votes (Cheynel & Levine, 2020; Jensen & Meckling, 1976). Agency theory highlights the inherent conflicts of interest between shareholders (principals) and executives (agents), stemming from the differential access to information. Executives often possess more detailed information about the firm's performance and compensation practices, while shareholders, lacking comparable insights, may face difficulties in making fully informed voting decisions (Banyi & Bull Schaefer, 2022; Berthelot et al., 2022). This information gap can lead to strategic abstention, as shareholders may opt to abstain when they perceive the available information to be insufficient or when the cost of obtaining relevant data outweighs the potential benefits of voting (Feddersen & Pesendorfer, 1996, 1999).

Information asymmetry can distort the compensation contracting process and complicate shareholder decision-making (Elayan et al., 2008; Richardson, 2000). Managers may exploit this asymmetry to advance personal interests, reinforcing the need for transparent information to allow shareholders to make informed decisions (Arya & Mittendorf, 2005; Beyer et al., 2010; Bijoy & Mangla, 2023; Dutta, 2008; Dye, 1988; Jensen & Meckling, 1976; Liu et al., 2021). In the context of SOP, information asymmetry is particularly significant, as shareholders may abstain when they perceive uncertainty about the true value of executive compensation plans or when available information is opaque (Feddersen & Pesendorfer, 1999, Orthaus et al., 2023).

This idea aligns with prior studies showing that shareholders often abstain due to dissatisfaction with the information available or due to uneven information distribution between corporate insiders and shareholders (Feddersen & Pesendorfer, 1996, 1999). Abstention may thus serve as a mechanism for expressing dissatisfaction without fully opposing the compensation plans, especially in cases where transparency is lacking. Consequently, it becomes crucial to examine how information asymmetry influences shareholder behavior during SOP votes.

The rational apathy principle introduces another layer to shareholder behavior, suggesting that shareholders may adopt a passive stance if they perceive no tangible benefits from voting (Aldrich, 1993). Abstention becomes a viable option

when the cost of obtaining information about specific corporate issues and casting votes to oppose management's opinions outweighs the expected or actual benefit. This principle aligns with the concept of free ridership, where shareholders may abstain if they believe the cost of obtaining information is prohibitive and the probability of their votes influencing corporate policy is low (Fairfax, 2009). The free rider problem, rooted in the realization that shareholders can benefit by relying on the actions of others, further diminishes the incentive for individual shareholders to act on their own (Fairfax, 2009; Spatt, 2007).

2.4. Hypotheses development: Information asymmetry and SOP abstention

Building on the literature, our central hypothesis proposes that information asymmetry is positively associated with shareholder abstention in SOP votes. Information asymmetry creates a situation where shareholders, particularly less informed or less sophisticated ones, may feel uncertain about executive compensation proposals and, as a result, choose abstention over casting a definitive vote.

H1: All else being equal, there is a positive association between information asymmetry and SOP abstention votes.

Studies have examined other measures of information asymmetry and their roles as information intermediaries, such as analysts and institutional shareholders, who subsequently convey this information to other shareholders. These intermediaries function as crucial channels that shape the information received by a broader shareholder audience.

2.4.1. Role of analysts as information intermediaries

Analysts serve as key intermediaries, translating complex financial information into digestible insights for shareholders (Chang et al., 2006; Hutton et al., 2012; Yu, 2008). Prior research demonstrates that firms with high analyst coverage are perceived as more transparent, with analysts following firms that provide clearer and more accessible information (Bhushan, 1989; Francis & Soffer, 1997; Healy & Wahlen, 1999; Lang & Lundholm, 1993). Analyst coverage can mitigate the effects of information asymmetry by enhancing shareholders' understanding of compensation practices, thus reducing the likelihood of abstention (Chang et al., 2006; Hong et al., 2000).

However, in cases of high information asymmetry, characterized by measures such as bid-ask spread or Amihud's illiquidity, firms often experience reduced analyst coverage (Chung & Zhang, 2014; Hasbrouck, 2009). When analysts avoid covering opaque firms, shareholders may face greater uncertainty, increasing the propensity for abstention during SOP votes (Das et al., 1998; Groysberg et al., 2011). Thus, we expect analyst coverage to mediate the relationship or path between information asymmetry and SOP abstention. Therefore, we propose the following hypothesis:

H1a: All else being equal, information asymmetry, measured using broad economic indices, Amihud illiquidity, and bid-ask spread, is indirectly positively associated with SOP abstention through less analyst coverage.

2.4.2. Role of institutional investors in mitigating information asymmetry

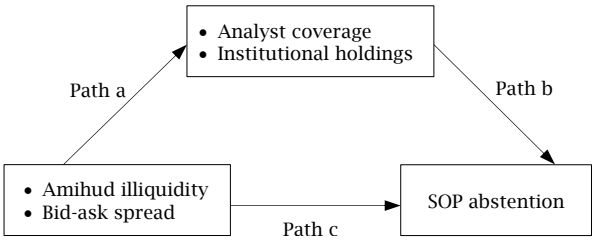
Institutional investors, with their extensive resources and expertise, play a crucial role in reducing information asymmetry (Boone & White, 2015; Healy & Palepu, 1999; Ajinkya et al., 2005). These sophisticated investors are adept at analyzing complex financial data and identifying firms with transparent governance and compensation practices (Bijoy & Mangla, 2023; Boone & White, 2015). In scenarios of heightened information asymmetry, institutional investors intensify their monitoring efforts to address information gaps, benefiting all shareholders (Boone & White, 2015).

Institutional ownership thus serves as a mitigating factor against the negative effects of information asymmetry. When institutional investors increase their holdings in firms with high levels of information asymmetry, they provide a signal of confidence and can help reduce shareholder abstention by reducing uncertainty and improving information flow (Boone & White, 2015; Healy & Palepu, 1999). Thus, we expect institutional ownership to mediate the relationship or path between information asymmetry and SOP abstention. Based on the above analysis, we propose the following hypothesis:

H1b: All else being equal, information asymmetry, measured using broad economic indices, Amihud illiquidity, and bid-ask spread, is indirectly positively associated with SOP abstention through less institutional ownership.

Figure 1 presents our conceptual model, which positions analyst coverage and institutional holdings as mediators in the relationship between information asymmetry and SOP abstention.

Figure 1. Conceptual model



3. RESEARCH METHODOLOGY

3.1. Data and sample selection

Our sample is constructed using secondary data on SOP votes, compiled from the text blocks of Item 5.07 sections of 8-K filings. We use a heuristic-based information extraction system, following the algorithm developed by Cong et al. (2007). The data on information asymmetry is obtained from Center for Research in Security Prices (CRSP), firm fundamentals from Compustat, analyst coverage from Institutional Brokers' Estimate System (IBES), and governance and compensation data from Institutional Shareholder Services (ISS) and ExecuComp. Institutional holdings data is sourced from Form 13F filings.

The sample selection period spans from 2011 to 2015, aligned with the introduction of mandatory SOP voting under Section 951 of the Dodd-Frank Act. We begin with an initial sample of 4,393 firms and 12,644 firm-year observations. Firms with a market capitalization below $75 million in 2011 and 2012 were excluded, as they were exempt from SOP voting requirements until the 2013 proxy season (SEC, 2011). This process ensures our data reflects consistent regulatory treatment across firms, minimizing biases from differential regulatory requirements. Additionally, firms and observations with missing data from Compustat, CRSP, IBES, ISS, or ExecuComp were excluded, resulting in a final sample of 1,345 firms and 4,243 firm-year observations.

This five-year period captures the first full implementation of SOP votes for all publicly traded U.S. firms, providing a robust window to analyze trends in shareholder voting behavior, particularly abstention rates.

In Panel A of Table 1, we present a sample selection for firms. Initially, we start with 4,393 firms and 12,644 firm-year observations. After applying the exclusion criteria, we arrive at the final sample. In Panel B of Table 1, the industry distribution of our sample is shown, categorized using the Fama and French 12 industry classification (French, 2024). The finance industry accounts for the largest portion, comprising 19.17% of the sample, followed by the business equipment industry at 17.63%. Meanwhile, industries like telecommunications, consumer durables, and chemicals represent the smallest shares, at 1.46%, 2.39%, and 3.08%, respectively. Overall, the industry distribution shows no significant clustering.

Table 1. Sample selection procedure and industry distribution

Panel A: Sample selection		
Description	***Firms***	***Firm-year observations***
Initial sample from Form 8-K filings	4,393	12,644
Less: Firms missing Compustat data	332	760
Less: Firms with market value less than		
$75 million in 2011 and 2012	60	327
Less: Firms missing CRSP data	372	680
Less: Firms missing IBES data	711	2,110
Less: Firms missing ISS and ExecuComp		
Data	1,619	4,525
Final sample	1,299	4,242
Panel B: Industry distribution		
Industry	***Firms***	***Percentage***
1. Consumer non-durables	79	6.08
2. Consumer durables	31	2.39
3. Manufacturing	148	11.39
4. Energy	59	4.54
5. Chemicals and allied products	40	3.08
6. Business equipment	229	17.63
7. Telecommunication	19	1.46
8. Utilities	63	4.85
9. Shops	134	10.32
10. Healthcare, medical equipment, and drugs	105	8.08
11. Money — Finance	249	19.17
12. Other — Mines, constr, BldMt, trans, hotels, bus serv, entertainment	143	11.01
Total	1,299	100.00

Table 2 presents the distribution of SOP votes for firm-year observations between 2011 and 2015. In Panel A, the majority of observations fall within the 0–5% range of shareholder abstention votes, with fewer instances where abstentions exceed 50%. Panel B illustrates the percentage of observations relative to the total for each meeting year, highlighting that while shareholders do engage in abstention voting, the numbers and percentages remain lower than those seen in other voting categories.

Table 2. Voting distribution

Panel A: Number of firm-year observations within each SOP abstention vote category								
Year	***50% < Abstain ≤ 100%***	***40% < Abstain ≤ 50%***	***30% < Abstain ≤ 40%***	***20% < Abstain ≤ 30%***	***10% < Abstain ≤ 20%***	***5% < Abstain ≤ 10%***	***0 ≤ Abstain ≤ 5%***	***Total***
2011	1	1	8	40	223	269	115	657
2012	0	1	10	48	218	328	145	750
2013	3	4	6	55	281	383	162	894
2014	3	2	13	57	289	419	204	987
2015	2	4	12	66	283	391	196	954
Total	9	12	49	266	1,294	1,790	822	4,242
Panel B: Percentage of firm-year observations relative to total annual observations within each SOP abstention vote category								
2011	0.15	0.15	1.22	6.09	33.94	40.94	17.50	100.00
2012	0.00	0.13	1.33	6.40	29.07	43.73	19.33	100.00
2013	0.34	0.45	0.67	6.15	31.43	42.84	18.12	100.00
2014	0.30	0.20	1.32	5.78	29.28	42.45	20.67	100.00
2015	0.21	0.42	1.26	6.92	29.66	40.99	20.55	100.00

3.2. Research design

To test our main hypothesis, we employ regression analysis to examine the association between measures of information asymmetry and SOP abstention votes.

To test our primary hypothesis, we estimate the regression model outlined in Eq. (1).

$$ABSTAIN = \beta_0 + \beta_1 Asymmetry + \beta_2 ROA + \beta_3 RET + \beta_4 MB + \beta_5 LnMVE + \beta_6 Abnormal\_Pay + \beta_7 LEV + \\ + \beta_8 CEOown + \beta_9 LnCEOage + \beta_{10} CEOgender + \beta_{11} LnCEOtenure + \beta_{12} LnBoard\_size + FF12 + YR + \varepsilon \quad (1)$$

3.2.1. Variables

The dependent variable in our analysis is SOP abstention votes (*ABSTAIN*), calculated as the ratio of the number of shareholders' abstention votes to the total votes.

Our key measures of information asymmetry or main independent variables of interest are the *bid-ask spread* (Leuz & Verrecchia, 2000) and *Amihud illiquidity* (Goyenko et al., 2009).

Bid-ask spread: Building on this understanding, bid-ask spread emerges as a relevant measure for assessing information asymmetry (Gregoriou et al., 2005; Leuz & Verrecchia, 2000) as it represents the difference between the highest price a buyer is willing to pay and the lowest price a seller is willing to accept. It serves as a measurable proxy for information asymmetry due to its sensitivity to market conditions (Chung & Zhang, 2014; Hasbrouck, 2009). A narrower spread indicates lower information asymmetry, suggesting a more transparent market, while a wider spread implies higher information asymmetry, signaling a divergence in market participants' views and limited information disclosure.

Amihud illiquidity: This recognized metric quantifies the impact of information asymmetry on a security's liquidity by capturing the relationship between price changes and trading volume (Amihud, 2002; Goyenko et al., 2009). Studies on Amihud's illiquidity often center on its sensitivity to changes in information availability and the implications for market efficiency (Amihud, 2002). Higher levels of Amihud illiquidity indicate lower liquidity and increased information asymmetry, as investors may require a higher premium for trading in securities with less transparent information.

Both Amihud illiquidity and bid-ask spread serve as measures of information asymmetry, addressing distinct aspects of market dynamics. Amihud illiquidity evaluates the price impact of trading by gauging the market's capacity to absorb trades without causing significant price fluctuations. Higher values of Amihud illiquidity indicate lower liquidity, suggesting that trading may be challenging due to potential information imbalances or uncertainties. This can lead to increased investor hesitancy, driven by perceived risks associated with limited liquidity.

In contrast, the bid-ask spread reflects the difference between the highest price a buyer is willing to pay (bid) and the lowest price a seller is willing to accept (ask). It reflects pricing dynamics and highlights the costs associated with executing trades. Larger bid-ask spreads often indicate higher levels of information asymmetry, arising from uncertainty or disagreement among market participants regarding the asset's true value, which is influenced by variations in information quality and availability.

While both measures provide insights into the challenges and uncertainties related to information asymmetry, they do so from slightly different perspectives. Amihud illiquidity emphasizes the impact of trading on prices, whereas the bid-ask spread focuses on the costs and dynamics associated with trading in the market.

The bid-ask spread serves as a key indicator of both the cost of immediacy and the presence of information asymmetry within the market. Simultaneously, Amihud illiquidity provides a measure of a stock's responsiveness to order flow, capturing how price changes relate to trading volume. By integrating these market-based metrics, our objective is to comprehensively capture the economic landscape of information asymmetry. This integration offers a robust foundation for our investigation, allowing us to better understand the nuances of how information disparities influence shareholder behavior and market dynamics.

Consistent with prior studies (Cai & Walkling, 2011; Conyon & Sadler, 2010; Ferri & Maber, 2013; Stathopoulos & Voulgaris, 2016), we control various factors known to influence SOP abstention votes. Specifically, we include control variables for firm performance, size, valuation, leverage, and governance. To capture firm performance, we incorporate returns on assets (*ROA*) and stock returns (*RET*). Firm size is accounted for using the natural logarithm of market value of equity (*LnMVE*), and growth opportunities are reflected through the market-to-book ratio (*MB*). Additionally, we control leverage (*LEV*).

Our governance controls encompass board size, CEO gender (Canil et al., 2019), CEO age and tenure, CEO ownership, and the level of abnormal pay (*Abnormal_Pay*) following the approach of Stathopoulos and Voulgaris (2016). Variable definitions are provided in Table 3.

Table 3. Variables of the study

Variable	*Definition*
ABSTAIN	Percentage of abstention votes computed as (abstain votes / total votes) * 100
Abnormal_Pay	Residual from regression with total CEO pay as the dependent variable and the independent variables as *ROA*, *RET*, *LnMVE*, *LEV*, and *MB*
AMIHUD	Amihud illiquidity: Average (stock return / trading volume)
Asymmetry	Measures of information asymmetry, Amihud illiquidity, bid-ask spread
CEOgender	Dummy variable set to1 if the CEO is a female, otherwise zero
CEOown	CEO ownership / shares outstanding
FF12	Industry dummies.
LEV	Total debt / total asset
LNANALYST	Natural logarithm of the number of analysts following a firm
LnBoard_size	Natural logarithm of board size
LnCEOage	Natural logarithm of CEO age
LnCEOtenure	Natural logarithm of CEO tenure
LnMVE	Natural logarithm of market value of equity.
MB	Market-to-book ratio.
MVE	Market value of equity
PERC_HOLDINGS	Number of voting shares held by institutional investors / total number of shares outstanding * 100
ROA	Return on asset computed as income before extraordinary items lagged by assets.
RET	Firms' stock return over 12 months prior to the annual meeting.
SPREAD	The bid-ask spread: (Ask - bid) / (((ask + bid) / 2))
YR	Year dummies

3.2.2. Supplementary analysis

In our supplementary analysis, we employ Hayes' (2022) mediation techniques, using the PROCESS[3] macro. This powerful tool facilitates the simultaneous assessment of all path coefficients, providing direct and indirect effect estimates. One notable advantage of this approach is that a direct effect between the independent and dependent variables is not a prerequisite for conducting the mediation test. Instead, the emphasis is placed on evaluating the indirect effect of the independent variables on the dependent variable through specified mediators.

The PROCESS macro simplifies the mediation tests for our hypotheses *H1a* and *H1b*. In conducting our mediation analysis, we adopt bootstrap estimation with a default of 5,000 iterations (Hayes, 2022; Hayes, 2013; Preacher & Hayes, 2008). This bootstrap technique generates confidence intervals (CIs) for the indirect effects by repeatedly sampling, with replacement, from the dataset. Model validation is achieved when 95% CIs exclude zero, which signifies support for our proposed mediation model. Conversely, if the CIs encompass zero, this would indicate a lack of an indirect effect, thereby negating the hypothesis (MacKinnon et al., 2002).

In this study, we ensure the robustness of our results by incorporating both industry and year-fixed effects, which control for unobserved heterogeneity across industries and temporal variations. This approach helps to isolate the effect of our key variables by accounting for any industry-specific or time-specific factors that might influence the outcomes. Additionally, we employ the PROCESS Macro to estimate the mediation model, which is particularly useful in addressing potential endogeneity issues between the dependent, independent, and mediator variables. It allows us to better understand the pathways through which information asymmetry impacts SOP abstention votes. By systematically examining the mediation or indirect effects, we gain deeper insights into the complex relationships at play within our research framework. Together, these techniques enhance the reliability and validity of our findings by mitigating biases and improving model accuracy.

3.2.3. Alternative methods

In addition to the empirical approach employed, other methods could also be suitable for examining the relationship between information asymmetry and SOP abstention votes. A qualitative approach, such as conducting interviews with institutional investors or board members, could provide deeper insights into the decision-making process behind SOP abstention. This could be especially useful in understanding the rationale behind the votes in specific cases where quantitative data may not capture the complexities of human behavior.

Alternatively, a case study methodology could offer an in-depth analysis of companies with high levels of abstention votes, providing rich contextual data. Event studies, focusing on market reactions to SOP outcomes, might also help explore the broader implications of information asymmetry on investor behavior.

Another potential method is survey-based research, which could gather data directly from shareholders or analysts about the perceived level of information asymmetry and its impact on voting behavior. Each of these methods, though different from the primary empirical strategy used in this study, could add depth and complementary insights.

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Descriptive statistics

In Table 4, we provide descriptive statistics for the variables used in our study. The mean SOP abstention rate is 10.09%, while the mean values for measures of information asymmetry — Amihud illiquidity and bid-ask spread — are 0.02 and 0.18, respectively. These proxies provide critical insights into the informational environment within which shareholders make voting decisions, particularly in settings characterized by low transparency or incomplete information.

The mean values of our control variables align with those reported in prior studies (Conyon & Sandler, 2020; Ferri & Maber, 2013; Stathopoulos & Voulgaris, 2016). For our sample, firms exhibit a mean ROA of 0.05 and a mean RET of 0.15.

[3] The PROCESS macro is a popular tool in social science and management research for testing mediation hypotheses. One key advantage of using PROCESS macro over simultaneous equation models and basic regression analysis is its ability to more effectively handle potential endogeneity concerns between the dependent, independent, and mediator variables (Hayes, 2022).

These indicators are particularly relevant given the theoretical link between firm performance and shareholder engagement. A firm's financial health, measured by these variables, can influence voting behavior, especially as low-performing firms often face more scrutiny from shareholders (Cai & Walkling, 2011). The average market value of equity is $71,397,300. Additionally, the mean CEO age is approximately 57 years old, with a mean tenure of 11.63 years.

Table 4. Descriptive statistics

Variable	*N*	*Mean*	*Std. Dev.*	*Minimum*	*1st quartile*	*Median*	*3rd quartile*	*Maximum*
ABSTAIN	4242	10.09	6.97	0.00	5.59	8.28	12.82	82.24
AMIHUD	4242	0.02	0.01	0.00	0.00	0.00	0.01	0.18
SPREAD	4242	0.06	0.06	0.02	0.02	0.05	0.08	0.98
ROA	4242	0.05	0.06	-0.22	0.02	0.05	0.08	0.16
RET	4242	0.15	0.27	-0.40	-0.01	0.14	0.30	0.84
MB	4242	2.86	2.10	0.59	1.43	2.21	3.50	9.50
MVE	4242	7139.73	8993.15	92.83	1117.50	2834.40	9143.55	28821.03
LnMVE	4242	8.06	1.35	4.53	7.02	7.95	9.12	10.27
LEV	4242	0.19	0.17	0.00	0.04	0.17	0.30	2.88
Abnormal_Pay	4242	0.01	0.71	-16.51	-0.29	0.07	0.38	2.74
CEOown	4242	1.83	4.52	0.00	0.19	0.53	1.45	64.42
CEOage	4242	57.26	6.84	33.00	53.00	57.00	61.00	97.00
LnCEOage	4242	4.04	0.12	3.50	3.97	4.04	4.11	4.57
CEOgender	4242	0.04	0.19	0.00	0.00	0.00	0.00	1.00
CEOtenure	4242	11.63	8.87	1.00	5.00	9.00	16.00	62.00
LnCEOtenure	4242	2.16	0.81	0.00	1.61	2.20	2.77	4.13
Board_size	4242	9.43	2.25	4.00	8.00	9.00	11.00	34.00
LnBoard_size	4242	2.22	0.24	1.39	2.08	2.20	2.40	3.53

4.2. Pearson's correlation analysis

In Table 5, the correlation matrix results reveal a significant positive correlation between *ABSTAIN* and both *AMIHUD* and *SPREAD* ($p < 0.0001$), suggesting that higher levels of information asymmetry are associated with increased SOP abstention votes. This finding is theoretically consistent with agency theory, which posits that shareholders abstain from voting when they lack sufficient information to assess managerial performance (Jensen & Meckling, 1976). Empirical studies, such as Stathopoulos and Voulgaris (2016), also support this relationship, emphasizing that information asymmetry can impair shareholder decision-making and lead to cautious voting behavior.

The negative correlation between *ABSTAIN* and *ROA* and *RET* reinforces the idea that stronger financial performance reduces the likelihood of abstention, as shareholders are more confident in their voting decisions when a firm is performing well. This relationship is corroborated by Cai and Walkling (2011), who found that higher firm performance is typically associated with more decisive voting outcomes.

Importantly, the correlation coefficients for the remaining variables do not indicate multicollinearity, as none exceeds 0.70. This threshold aligns with conventional benchmarks used in empirical research to detect multicollinearity issues (Gujarati, 2003). Maintaining low multicollinearity is essential for ensuring the reliability of regression estimates, as it helps to avoid inflated standard errors and biased coefficient estimates. Thus, the results of our regression models can be interpreted with confidence in the absence of multicollinearity concerns, supporting the robustness of our findings.

Table 5. Pearson's correlation analyses

Panel A: Amihud illiquidity and SOP abstention													
	1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***
(1) ABSTAIN	1.00												
(2) AMIHUD	0.10***	1.00											
(3) ROA	-0.13***	-0.25***	1.00										
(4) RET	-0.10***	-0.05***	0.15***	1.00									
(5) MB	-0.04**	-0.13***	0.43***	0.17***	1.00								
(6) LnMVE	0.01	-0.43***	0.26***	0.12***	0.28***	1.00							
(7) Abnormal_Pay	-0.08***	-0.03**	0.00	0.00	0.00	-0.01	1.00						
(8) LEV	0.00	-0.10***	-0.16***	0.01	0.06***	0.17***	0.00	1.00					
(9) CEOown	-0.07***	0.12***	0.03*	-0.01	0.00	-0.23***	-0.13***	-0.11***	1.00				
(10) LnCEOage	0.03**	0.02	-0.04***	0.00	-0.10***	0.06***	-0.04	0.01	0.09***	1.00			
(11) CEOgender	0.02	-0.02	0.03	0.01	0.06***	0.02	0.02**	0.03	-0.03**	-0.05***	1.00		
(12) LnCEOtenure	-0.01	0.05***	0.02*	0.00	-0.03*	-0.12***	-0.07	-0.07***	0.32***	0.41***	-0.08***	1.00	
(13) LnBoard_size	0.10***	-0.19***	-0.05***	0.01	-0.04***	0.48***	-0.01***	0.09***	-0.22***	0.08***	0.01	-0.15***	1.00
Panel B: Bid-ask spread and SOP abstention													
(1) ABSTAIN	1.00												
(2) SPREAD	0.18***	1.00											
(3) ROA	-0.13***	-0.31***	1.00										
(4) RET	-0.10***	-0.07***	0.15***	1.00									
(5) MB	-0.04**	-0.20***	0.43***	0.17***	1.00								
(6) LnMVE	0.01	-0.63***	0.26***	0.12***	0.28***	1.00							
(7) Abnormal_Pay	-0.08***	-0.05***	0.00	0.00	0.00	-0.01	1.00						
(8) LEV	0.00	-0.16***	-0.16***	0.01	0.06***	0.17***	0.00	1.00					
(9) CEOown	-0.07***	0.16***	0.03*	-0.01	0.00	-0.23***	-0.13***	-0.11***	1.00				
(10) LnCEOage	0.03**	-0.04**	-0.04***	0.00	-0.10***	0.06***	-0.04**	0.01	0.09***	1.00			
(11) CEOgender	0.02	-0.01	0.03**	0.01	0.06***	0.02	0.02	0.03	-0.03**	-0.05***	1.00		
(12) LnCEOtenure	-0.01	0.06***	0.02	0.00	-0.03*	-0.12***	-0.07***	-0.07***	0.32***	0.41***	-0.08***	1.00	
(13) LnBoard_size	0.10***	-0.28***	-0.05***	0.01	-0.04***	0.48***	-0.01	0.09***	-0.22***	0.08***	0.01	-0.15***	1.00

*Note: ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.*

4.3. Regression results

In Table 6, the regression results provide robust support for *H1*, which hypothesizes a positive relationship between information asymmetry and SOP abstention voting. The results in column 1, where the Amihud illiquidity ratio is used as the measure of information asymmetry, indicate a significant positive relationship ($F = 20.09$, $p < 0.0001$, adjusted $R^2 = 0.05$). Similarly, the bid-ask spread model in column 2 reveals a positive and significant association ($F = 34.44$, $p < 0.0001$, adjusted $R^2 = 0.09$). These findings align with prior empirical studies, including those by Ferri and Maber (2013), who suggest that shareholders may strategically abstain in the face of asymmetric information to mitigate the risk of uninformed decision-making.

This result is particularly relevant to agency theory, which highlights the role of information asymmetry in driving divergent behaviors between managers and shareholders. When shareholders face high levels of information asymmetry, they are likely to abstain from voting as a risk management mechanism. This strategic abstention reflects shareholders' effort to avoid making decisions without sufficient knowledge, thus aligning with the broader literature on shareholder behavior under information uncertainty (Healy & Palepu, 2001).

Table 6. SOP abstention and information asymmetry

Variable	*Expected sign*	*1*	*2*
		Y = ABSTAIN	*Y = ABSTAIN*
		Estimated coefficient	*Estimated coefficient*
Intercept	?	-0.90 (-0.24)	-9.18** (-2.42)
AMIHUD	+	81.77*** (5.81)	
SPREAD	+		32.22*** (14.07)
ROA	-	-13.54*** (-6.37)	-8.76*** (-4.14)
RET	-	-2.18*** (-5.50)	-2.31*** (5.92)
MB	?	0.13** (2.21)	0.10* (1.70)
LnMVE	?	0.12 (1.12)	0.72*** (6.42)
Abnormal_Pay	?	-0.82*** (-5.56)	-0.72*** (-5.00)
LEV	?	-1.39** (-2.20)	-0.54 (-0.87)
CEOown	?	-0.12*** (-4.64)	-0.13*** (-5.12)
LnCEOage	?	1.11 (1.15)	1.43 (1.50)
CEOgender	?	0.74 (1.35)	0.71 (1.31)
LnCEOtenure	?	0.11 (0.70)	0.14 (0.97)
LnBoard_size	?	2.81*** (5.36)	2.80*** (5.45)
Industry dummies		Yes	Yes
Year dummies		Yes	Yes
N		4242	4242
F(P-value)		20.09 (< 0.0001)	34.44 (< 0.0001)
Adjusted R^2		0.05	0.09

*Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The model estimated is:* $ABSTAIN = \beta_0 + \beta_1 Asymmetry + \beta_2 ROA + \beta_3 RET + \beta_4 MB + \beta_5 LnMVE + \beta_6 Abnormal\_Pay + \beta_7 LEV + \beta_8 CEOown + \beta_9 LnCEOage + \beta_{10} CEOgender + \beta_{11} LnCEOtenure + \beta_{12} LnBoard\_size + FF12 + YR + \varepsilon$

5. ADDITIONAL ANALYSIS

In this section, we present additional analyses focused on the mediation roles of two primary channels: institutional investors and analyst coverage. Analysts contribute significantly to capital markets by enhancing information efficiency and promoting market transparency (Healy & Palepu, 2001; Lang & Lundholm, 1993; Yu, 2008). Similarly, institutional investors actively monitor and engage with firms in their portfolios. In the presence of high information asymmetry, these investors may intensify monitoring efforts, gathering more comprehensive data to make informed decisions (Boone & White, 2015). Their actions can, in turn, influence shareholder behavior and affect SOP abstention.

Prior research indicates that institutional investors and analysts act as mediators by responding to varying levels of information asymmetry reflected, such as those captured by Amihud illiquidity and the bid-ask spread, potentially influencing SOP abstention.

Figure 1 illustrates the intuition behind the path analysis used to test *H1a* and *H1b*, following the methodology of Baron and Kenny (1986). We employ a two-model set based on PROCESS Model 4, as suggested by Hayes (2022). This method helps us analyze the mediating role of variable *M* between the independent variable *X* and the dependent variable *Y*, that is $X \rightarrow M \rightarrow Y$.

5.1. Analyst coverage

Existing literature, including Lang and Lundholm (1996) and Yu (2008), suggests that firms with more analyst coverage tend to have lower information asymmetry, which in turn influences shareholder voting behavior. In this study, we measure analyst coverage as the natural logarithm of the number of analysts following each firm.

To understand the mediation effect of analyst coverage (*LNANALYST*) on the relationship between information asymmetry (as measured by *SPREAD*) and SOP abstention (*ABSTAIN*), we test the following equations:

$$Y = \alpha_0 + \beta_1 X + \beta_2 Controls + \epsilon_Y \quad (2)$$

$$M = \alpha_1 + \beta_3 X + \beta_4 Controls + \epsilon_M \quad (3)$$

$$Y = \alpha_2 + \beta_5 X + \beta_6 Controls + \beta_7 Controls + \epsilon_Y \quad (4)$$

As depicted in Figure 1, Path c corresponds to the total effect of the independent variable ($X = SPREAD$) on the dependent variable ($Y = ABSTAIN$), while Path a corresponds to the effect of X on the mediator variable ($M = LNANALYST$), and Path b captures the effect of M on Y. The total effect of X on Y is represented by β_1, which can be broken down into the direct effect of X (β_5) and the mediation effect $\beta_3 \times \beta_6$, corresponding to the products of Paths a and b. Because the total effect can also be expressed as $\beta_1 = \beta_5 + \beta_3 \times \beta_6$, it is sufficient to estimate only Eqs. (3) and (4).

The result presented in Table 7a, Panel A, presents the mediation results of estimating Eqs. (3) and (4). In Model 1, *SPREAD* shows a significant negative relationship with *LNANALYST* (B = -0.86, t = -3.83). This result indicates that higher levels of information asymmetry (greater *SPREAD*) are associated with lower analyst coverage. This supports the idea that firms with higher information asymmetry tend to attract fewer analysts, likely due to the greater uncertainty and difficulty in assessing the firm's value. In Model 2, *SPREAD* is positively and significantly associated with *ABSTAIN* (B = 32.32, t = 14.09), confirming that higher information asymmetry leads to greater SOP

abstention, supporting our hypothesis that shareholders are more likely to abstain from voting on SOP when information asymmetry is high. However, *LNANALYST* is not significantly associated with *ABSTAIN* (B = 0.12, t = 0.77), suggesting that analyst coverage does not have a direct impact on SOP abstention.

To validate *H1a*, we performed a mediation analysis using a bootstrapping method recommended by Hayes (2022) and Preacher et al. (2007). This approach approximates the sampling distributions of indirect effects, enabling us to compute 95% CIs. A CI that does not include zero indicates a statistically significant indirect effect. The bootstrapped results for the mediation effect, based on 5,000 samples, are reported in Panel B of Table 7a. The bootstrapped indirect effect is small and negative (-0.1031), with the CI including zero (-0.4674 to 0.2002), indicating that the mediating role of *LNANALYST* is not statistically significant. Thus, while *SPREAD* negatively impacts *LNANALYST*, the effect of *LNANALYST* on *ABSTAIN* is not strong enough to suggest a meaningful indirect pathway. Thus, *H1a* is not supported by statistical significance. Similarly, in Table 7b, we use *AMIHUD* as our measure of information asymmetry, and record the same result, and *H1a* is not supported.

Table 7a. Simple mediation results on *SPREAD*, *LNANALYST*, and *ABSTAIN*

Panel A: Mediation effect			
		Model 1: M = LNANALYST B(t-value)	***Model 2: Y = ABSTAIN B(t-value)***
Variable	***Expected sign***	***Estimated coefficient (t-stat)***	***Estimated coefficient (t-stat)***
LNANALYST			0.12 (0.77)
SPREAD	-	-0.86*** (-3.83)	32.32*** (14.09)
ROA	?	-0.99*** (-4.77)	-8.64*** (-4.08)
RET	?	-0.31*** (-8.14)	-2.27*** (-5.78)
MB	?	-0.01 (-0.95)	0.10* (1.71)
LnMVE	?	0.40*** (35.52)	0.68*** (5.26)
Abnormal_Pay	?	0.11 (8.02)	-0.74*** (-5.06)
LEV	?	-0.61*** (-9.92)	-0.47 (-0.74)
CEOown	?	0.01*** (2.76)	-0.13*** (-5.15)
LnCEOage	?	-0.34***(-3.66)	1.47 (1.54)
CEOgender	?	-0.14**(-2.53)	0.72 (1.34)
LnCEOtenure	?	0.02 (1.05)	0.14 (0.96)
LnBoard_size	?	0.03 (0.53)	2.79*** (5.44)
Intercept		Yes	Yes
Industry and year-fixed effects		Yes	Yes
N		4242	4242
Adjusted R^2		0.40	0.09

Panel B: Bootstrap indirect effects on ABSTAIN through LNANALYST				
	Indirect effect	***BootSE***	***BootLLCI***	***BootULCI***
SPREAD → LNANALYST → ABSTAIN	-0.1031	0.1637	-0.4674	0.2002
Level of confidence interval (95%), Bootstrap samples (5,000)				

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. LL = lower limit; CI = confidence interval; UL = upper limit. Unstandardized regression coefficients are reported, and t-values are in parenthesis.*

Table 7b. Simple mediation results on *AMIHUD*, *LNANALYST*, and *ABSTAIN*

Panel A: Mediation effect			
		Model 1: M = LNANALYST B(t-value)	***Model 2: Y = ABSTAIN B(t-value)***
Variable	***Expected sign***	***Estimated coefficient (t-stat)***	***Estimated coefficient (t-stat)***
LNANALYST	-		0.09 (0.59)
AMIHUD	-	-9.83*** (-7.26)	82.69*** (5.84)
ROA	?	-1.07*** (-5.217)	-13.44** (-6.30)
RET	?	-0.31*** (-8.19)	-2.16*** (-5.38)
MB	?	-0.004 (-0.78)	0.13** (2.22)
LnMVE	?	0.39*** (38.93)	0.08 (0.66)
Abnormal_Pay	?	0.11*** (8.06)	-0.83*** (-5.59)
LEV	?	-0.61*** (-10.05)	-1.33** (-2.09)
CEOown	?	0.01*** (2.79)	-0.12*** (-4.67)
LnCEOage	?	-0.31*** (-3.32)	1.14 (1.17)
CEOgender	?	-0.14 (-2.58)	0.75 (1.37)
LnCEOtenure	?	0.01 (1.01)	0.10 (0.69)
LnBoard_size	?	0.02 (0.46)	2.81*** (5.36)
Intercept		Yes	Yes
Industry and year-fixed effects		Yes	Yes
N		4242	4242
Adjusted R^2		0.41	0.05

Panel B: Bootstrap indirect effects on ABSTAIN through LNANALYST				
	Indirect effect	***BootSE***	***BootLLCI***	***BootULCI***
AMIHUD → LNANALYST → ABSTAIN	-0.9222	1.9468	-5.0654	2.5206
Level of confidence interval (95%), Bootstrap samples (5,000)				

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. LL = lower limit; CI = confidence interval; UL = upper limit. Unstandardized regression coefficients are reported, and t-values are in parenthesis.*

5.2. Institutional holdings

Institutional investors, renowned for their informational advantage and monitoring role in investee firms (Appel et al., 2016; Brav et al., 2008; Brockman & Yan, 2009; Bushee & Goodman, 2007), serve as a valuable subset for additional analysis. Focusing on a subset of our data spanning 2013 to 2015, we utilize institutional ownership as a proxy for the availability of information. The percentage of voting shares held by institutional investors is computed.

We use Eqs. (3) and (4) to estimate our regression models, substituting the mediator variable *M* with *PERC_HOLDING*. In this analysis, we also use *SPREAD* and *AMIHUD* as measures of information asymmetry (*X*), while *ABSTAIN* serves as our dependent variable (*Y*). The mediation results for our hypothesized models are detailed in Tables 8a and 8b.

In Table 8a, the direct effect of *SPREAD* on *ABSTAIN* is positive and statistically significant (B = 54.63, t = 13.63), indicating that higher information asymmetry, as measured by the bid-ask spread, increases the likelihood of SOP abstention. In Model 1, *SPREAD* also has a significant negative impact on *PERC_HOLDING* (B = -1735.24, t = -1.98), suggesting that greater information asymmetry reduces institutional ownership. Furthermore, *PERC_HOLDING* has a significant negative effect on *ABSTAIN* (B = -0.001, t = -2.73), meaning that higher institutional ownership is associated with a decrease in SOP abstention. The indirect effect (*SPREAD → PERC_HOLDING → ABSTAIN*) is small (0.4058) but statistically significant, as the CI (0.1676 to 1.3063) does not include zero. This confirms that institutional ownership partially mediates the effect of information asymmetry on SOP abstention.

Similarly, in Table 8b, the direct effect of *AMIHUD* on *ABSTAIN* is positive and significant (B = 142.66, t = 4.46). *AMIHUD* negatively affects *PERC_HOLDING* (B = -10670.04, t = -1.57), although this result is not statistically significant. Despite this, *PERC_HOLDING* maintains a significant negative relationship with *ABSTAIN* (B = -0.001, t = -3.02). The bootstrapped indirect effect (*AMIHUD → PERC_HOLDING → ABSTAIN*) is larger (2.8342) and statistically significant, with a CI that excludes zero (1.1961 to 9.8136). This provides further evidence of a mediation effect, indicating that institutional ownership mediates the relationship between *AMIHUD* and SOP abstention.

In summary, the findings suggest that institutional ownership (*PERC_HOLDING*) acts as a mediator in this relationship, with higher information asymmetry leading to reduced institutional ownership, which in turn increases the likelihood of SOP abstention. Thus, *H1b* is supported.

Table 8a. Simple mediation results of *SPREAD*, *PERC_HOLDING*, and *ABSTAIN*

Panel A: Mediation effect			
		Model 1: M = PERC_HOLDING B(t-value)	***Model 2: Y = ABSTAIN B(t-value)***
Variable	***Expected sign***	***Estimated coefficient (t-stat)***	***Estimated coefficient (t-stat)***
PERC_HOLDING	-		-0.001*** (-2.73)
SPREAD	-	-1735.24** (-1.98)	54.63*** (13.63)
ROA	+/-	650.39 (1.15)	-3.33 (-1.28)
RET	+/-	148.87 (1.37)	-2.156*** (-4.34)
MB	?	7.28 (0.50)	0.10 (1.50)
LnMVE	?	-149.57*** (-4.61)	1.12*** (7.51)
Abnormal_Pay	?/+	16.38 (0.44)	-0.50*** (-2.91)
LEV	?	305.47* (1.87)	0.24 (0.31)
CEOown	?	-2.77 (-0.32)	-0.18*** (-4.64)
LnCEOage	?	-49.32 (-0.19)	2.58** (2.12)
CEOgender	?	-69.19 (-0.48)	0.21 (0.32)
LnCEOtenure	?	1.02 (0.03)	0.08 (0.45)
LnBoard_size	?	192.52 (1.35)	2.94***(4.51)
Intercept		Yes	Yes
Industry and year-fixed effects		Yes	Yes
N		2862	2862
Adjusted R^2		0.01	0.10

Panel B: Bootstrap indirect effects on ABSTAIN through PERC_HOLDING				
	Indirect effect	***BootSE***	***BootLLCI***	***BootULCI***
SPREAD → PERC_HOLDING → ABSTAIN	0.4058	0.3122	0.1676	1.3063
Set level of confidence interval (95%), Bootstrap samples (5,000)				

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. LL = lower limit; CI = confidence interval; UL = upper limit. Unstandardized regression coefficients are reported, and t-values are in parenthesis.*

Table 8b. Simple mediation results of *AMIHUD*, *PERC_HOLDING*, and *ABSTAIN*

Panel A: Mediation effect			
		Model 1: M = PERC_HOLDING B(t-value)	***Model 2: Y = ABSTAIN B(t-value)***
Variable	***Expected sign***	***Estimated coefficient (t-stat)***	***Estimated coefficient (t-stat)***
PERC_HOLDING	-		-0.001*** (-3.02)
AMIHUD	-	-10670.04 (-1.57)	142.66*** (4.46)
ROA	+/-	-528.53 (-0.95)	-9.55*** (-3.64)
RET	+/-	144.51 (1.33)	-2.04*** (-3.99)
MB	?	6.73 (0.47)	0.14** (1.98)
LnMVE	?	-132.12*** (-4.50)	0.22 (1.61)
Abnormal_Pay	?/+	20.23 (0.54)	-0.67*** (-3.79)
LEV	?	339.53** (2.10)	-1.27* (1.66)
CEOown	?	-3.49 (-0.40)	-0.15*** (-3.64)
LnCEOage	?	-37.68 (-0.14)	2.47** (1.97)
CEOgender	?	-63.46 (-0.44)	0.04 (0.06)
LnCEOtenure	?	2.99 (0.07)	-0.01 (-0.04)
LnBoard_size	?	189.37 (1.33)	3.16*** (4.71)
Intercept		Yes	Yes
Industry and year-fixed effects		Yes	Yes
N		2862	2862
Adjusted R^2		0.01	0.04

Panel B: Bootstrap indirect effects on ABSTAIN through PERC_HOLDING				
	Indirect effect	***BootSE***	***BootLLCI***	***BootULCI***
AMIHUD → PERC_HOLDING → ABSTAIN	2.8342	2.4008	1.1961	9.8136
Set level of confidence interval (95%), Bootstrap samples (5,000)				

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1. LL = lower limit; CI = confidence interval; UL = upper limit. Unstandardized regression coefficients are reported, and t-values are in parenthesis.*

Our result aligns with prior research that identifies institutional investors as sophisticated players with better access to information, who can influence both managerial decisions and shareholder votes (Boone & White, 2015; Bushee & Goodman, 2007). In the context of SOP voting, institutional investors likely engage in more active monitoring and decision-making, thus reducing the propensity for abstention. This has important policy implications, suggesting that governance reforms aimed at encouraging greater institutional ownership could enhance shareholder participation and reduce abstention rates.

6. CONCLUSION

This study examines the relationship between information asymmetry and SOP abstention votes, highlighting the role of transparency and shareholders' decision-making in executive compensation matters. Using the SOP setting, our findings reveal a positive association between information asymmetry, as measured by the Amihud illiquidity ratio and bid-ask spread, and SOP abstention. As information asymmetry increases, shareholders are more likely to abstain, which implies that transparency in compensation disclosures plays a crucial role in fostering shareholder confidence and engagement. Furthermore, while institutional ownership partially mediates the relationship between information asymmetry and abstention, the anticipated mediating role of analyst coverage was found to be non-significant. These results underscore the complexity of shareholders' behavior when confronted with information gaps.

The contributions of this study extend to both corporate governance practices and policy. It highlights the relationship between information asymmetry and shareholder abstention in SOP votes, revealing how gaps in compensation disclosures can undermine shareholder participation. The findings highlight the importance of transparency in corporate governance, suggesting that when executive compensation information is opaque, shareholders are more likely to abstain, indicating a lack of confidence in the available information. Although the expected mediating role of analyst coverage was not supported, the partial mediation effect of institutional holdings provides a new perspective on how informed shareholders navigate asymmetry. The implications extend beyond the SOP setting, as the results suggest that improving the accessibility and clarity of compensation disclosures could enhance corporate governance practices globally.

For future research, this paper opens avenues for cross-country comparisons and examinations of the mandatory versus advisory nature of SOP regulations, offering insights into how transparency, information channels, and regulatory environments influence shareholder behavior in diverse governance contexts. These studies could help refine global governance standards, promoting more effective shareholder participation and accountability in executive compensation decisions.

While this study provides valuable insights into the relationship between information asymmetry and SOP abstention votes, there are limitations worth noting. First, publicly available data may not fully capture private interactions between firms and shareholders, which could impact voting behavior. Second, the study focuses on institutional ownership as a mediator but excludes other important factors like activist investors or proxy advisors. Finally, the U.S.-centric sample limits the generalizability of the findings, and future research could benefit from cross-country analysis or an extended time frame to strengthen robustness.

REFERENCES

Aaen, T., & Lueg, R. (2022). Performance pay sensitivity: Do top management incentives align with shareholder value creation? *Corporate Ownership & Control, 19*(3), 168–181. https://doi.org/10.22495/cocv19i3art13

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of Accounting Research, 43*(3), 343–376. https://doi.org/10.1111/j.1475-679x.2005.00174.x

Aldrich, J. H. (1993). Rational choice and turnout. *American Journal of Political Science, 37*(1), 246–278. https://doi.org/10.2307/2111531

Alissa, W. (2015). Boards' response to shareholders' dissatisfaction: the case of shareholders' say on pay in the UK. *European Accounting Review, 24*(4), 727–752. https://doi.org/10.1080/09638180.2015.1058719

Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets, 5*(1), 31–56. https://doi.org/10.1016/S1386-4181(01)00024-6

Appel, I. R., Gormley, T. A., & Keim, D. B. (2016). Passive investors, not passive owners. *Journal of Financial Economics, 121*(1), 111–141. https://doi.org/10.1016/j.jfineco.2016.03.003

Armstrong, C. S., Gow, I. D., & Larcker, D. F. (2013). The efficacy of shareholder voting: Evidence from equity compensation plans. *Journal of Accounting Research, 51*(5), 909–950. https://doi.org/10.1111/1475-679X.12023

Arya, A., & Mittendorf, B. (2005). Using disclosure to influence herd behavior and alter competition. *Journal of Accounting and Economics, 40*(1–3), 231–246. https://doi.org/10.1016/j.jacceco.2005.07.001

Baixauli-Soler, J. S., Lozano-Reina, G., & Sánchez-Marín, G. (2021). Managerial discretion, say on pay, and CEO compensation. *Management Decision, 59*(6), 1333–1362. https://doi.org/10.1108/MD-03-2020-0242

Balsam, S., Boone, J., Liu, H., & Yin, J. (2016). The impact of say-on-pay on executive compensation. *Journal of Accounting and Public Policy, 35*(2), 162–191. https://doi.org/10.1016/j.jaccpubpol.2015.11.004

Banyi, M., & Bull Schaefer, R. A. (2022). A commitment to change? CEO pay and alignment with environmental, social, and governance objectives. *Corporate Ownership & Control, 19*(4), 42–54. https://doi.org/10.22495/cocv19i4art4

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Berthelot, S., Coulmont, M., & Gagné, V. (2022). The quality of corporate governance and directors' elections. *Corporate Ownership & Control, 19*(2), 28–37. https://doi.org/10.22495/cocv19i2art2

Beyer, A., Cohen, D. A., Lys, T. Z., & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics, 50*(2–3), 296–343. https://doi.org/10.1016/j.jacceco.2010.10.003

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of Accounting and Economics, 11*(2–3), 255–274. https://doi.org/10.1016/0165-4101(89)90008-6

Bijoy, K., & Mangla, K. (2023). Agency cost: Ownership structure and board composition — An empirical analysis [Special issue]. *Corporate Ownership & Control, 20*(3), 351–358. https://doi.org/10.22495/cocv20i3siart10

Boone, A. L., & White, J. T. (2015). The effect of institutional ownership on firm transparency and information production. *Journal of Financial Economics, 117*(3), 508–533. https://doi.org/10.1016/j.jfineco.2015.05.008

Brav, A., Jiang, W., Partnoy, F., & Thomas, R. (2008). Hedge fund activism, corporate governance, and firm performance. *The Journal of Finance, 63*(4), 1729–1775. https://doi.org/10.1111/j.1540-6261.2008.01373.x

Brennan, N. M., & Solomon, J. (2008). Corporate governance, accountability and mechanisms of accountability: An overview. *Accounting, Auditing and Accountability Journal, 21*(7), 885–906. https://doi.org/10.1108/09513570810907401

Brockman, P., & Yan, X. S. (2009). Block ownership and firm-specific information. *Journal of Banking and Finance, 33*(2), 308–316. https://doi.org/10.1016/j.jbankfin.2008.08.011

Bushee, B. J., & Goodman, T. H. (2007). Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research, 45*(2), 289–321. https://doi.org/10.1111/j.1475-679X.2007.00234.x

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics, 32*(1–3), 237–333. https://doi.org/10.1016/S0165-4101(01)00027-1

Cai, J., & Walkling, R. A. (2011). Shareholders' say on pay: Does it create value? *Journal of Financial and Quantitative Analysis, 46*(2), 299–339. https://doi.org/10.1017/S0022109010000803

Canil, J., Karpavičius, S., & Yu, C.-F. (2019). Are shareholders gender neutral? Evidence from say on pay. *Journal of Corporate Finance, 58*, 169–186. https://doi.org/10.1016/j.jcorpfin.2019.05.004

Chang, X., Dasgupta, S., & Hilary, G. (2006). Analyst coverage and financing decisions. *The Journal of Finance, 61*(6), 3009–3048. https://doi.org/10.1111/j.1540-6261.2006.01010.x

Cheynel, E., & Levine, C. B. (2020). Public disclosures and information asymmetry: A theory of the mosaic. *The Accounting Review, 95*(1), 79–99. https://doi.org/10.2308/accr-52447

Chu, J., Gupta, A., & Livne, G. (2021). Pay regulation — Is more better? *Accounting and Business Research, 51*(1), 1–35. https://doi.org/10.1080/00014788.2020.1815515

Chung, K. H., & Zhang, H. (2014). A simple approximation of intraday spreads using daily data. *Journal of Financial Markets, 17*, 94–120. https://doi.org/10.1016/j.finmar.2013.02.004

Cong, Y., Kogan, A., & Vasarhelyi, M. A. (2007). Extraction of structure and content from the Edgar database: A template-based approach. *Journal of Emerging Technologies in Accounting, 4*(1), 69–86. https://doi.org/10.2308/jeta.2007.4.1.69

Conyon, M., & Sadler, G. (2010). Shareholder voting and directors' remuneration report legislation: say on pay in the UK. *Corporate Governance: An International Review, 18*(4), 296–312. https://doi.org/10.1111/j.1467-8683.2010.00802.x

Das, S., Levine, C. B., & Sivaramakrishnan, K. (1998). Earnings predictability and bias in analysts' earnings forecasts. *Accounting Review, 73*(2), 277–294. https://ssrn.com/abstract=112208

Dutta, S. (2008). Managerial expertise, private information, and pay-performance sensitivity. *Management Science, 54*(3), 429–442. https://doi.org/10.1287/mnsc.1070.0785

Dye, R. A. (1988). Earnings management in an overlapping generations model. *Journal of Accounting Research, 26*(2), 195–235. https://doi.org/10.2307/2491102

Elayan, F. A., Li, J., & Meyer, T. O. (2008). Accounting irregularities, management compensation structure and information asymmetry. *Accounting and Finance, 48*(5), 741–760. https://doi.org/10.1111/j.1467-629X.2008.00266.x

Ertimur, Y., Ferri, F., & Oesch, D. (2013). Shareholder votes and proxy advisors: Evidence from say on pay. *Journal of Accounting Research, 51*(5), 951–996. https://doi.org/10.1111/1475-679X.12024

Fairfax, L. M. (2009). The future of shareholder democracy. *Indiana Law Journal, 84*(4), 1259–1308. https://www.repository.law.indiana.edu/ilj/vol84/iss4/6/

Feddersen, T. J., & Pesendorfer, W. (1996). The swing voter's curse. *The American Economic Review, 86*(3), 408–424. https://www.jstor.org/stable/2118204

Feddersen, T. J., & Pesendorfer, W. (1999). Abstention in elections with asymmetric information and diverse preferences. *American Political Science Review, 93*(2), 381–398. https://doi.org/10.2307/2585402

Ferri, F., & Maber, D. A. (2013). Say on pay votes and CEO compensation: Evidence from the UK. *Review of Finance, 17*(2), 527–563. https://doi.org/10.1093/rof/rfs003

Francis, J., & Soffer, L. (1997). The relative informativeness of analysts' stock recommendations and earnings forecast revisions. *Journal of Accounting Research, 35*(2), 193–211. https://doi.org/10.2307/2491360

French, K. R. (2024). *Data library.* https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Goyenko, R. Y., Holden, C. W., & Trzcinka, C. A. (2009). Do liquidity measures measure liquidity? *Journal of Financial Economics, 92*(2), 153–181. https://doi.org/10.1016/j.jfineco.2008.06.002

Gregoriou, A., Ioannidis, C., & Skerratt, L. (2005). Information asymmetry and the bid-ask spread: Evidence from the UK. *Journal of Business Finance and Accounting, 32*(9–10), 1801–1826. https://doi.org/10.1111/j.0306-686X.2005.00648.x

Gregory-Smith, I., Thompson, S., & Wright, P. W. (2014). CEO pay and voting dissent before and after the crisis. *The Economic Journal, 124*(574), F22–F39. https://doi.org/10.1111/ecoj.12108

Groysberg, B., Healy, P. M., Nohria, N., & Serafeim, G. (2011). What factors drive analyst forecasts? *Financial Analysts Journal, 67*(4), 18–29. https://doi.org/10.2469/faj.v67.n4.4

Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). McGraw-Hill. https://zalamsyah.staff.unja.ac.id/wp-content/uploads/sites/286/2019/11/7-Basic-Econometrics-4th-Ed.-Gujarati.pdf

Hasbrouck, J. (2009). Trading costs and returns for U.S. equities: Estimating effective costs from daily data. *The Journal of Finance, 64*(3), 1445–1477. https://doi.org/10.1111/j.1540-6261.2009.01469.x

Hayes, A. F. (2013). *Model templates for PROCESS for SPSS and SAS*. Guilford Press. https://www.slideshare.net/slideshow/model-templates-for-process/246626620

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). Guilford Press.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics, 31*(1–3), 405–440. https://doi.org/10.1016/S0165-4101(01)00018-0

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4), 365–383. https://doi.org/10.2308/acch.1999.13.4.365

Healy, P. M., Hutton, A. P., & Palepu, K. G. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research, 16*(3), 485–520. https://doi.org/10.1111/j.1911-3846.1999.tb00592.x

Hong, H., Lim, T., & Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *The Journal of Finance, 55*(1), 265–295. https://doi.org/10.1111/0022-1082.00206

Hutton, A. P., Lee, L. F., & Shu, S. Z. (2012). Do managers always know better? The relative accuracy of management and analyst forecasts. *Journal of Accounting Research, 50*(5), 1217–1244. https://doi.org/10.1111/j.1475-679X.2012.00461.x

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kimbro, M. B., & Xu, D. (2016). Shareholders have a say in executive compensation: Evidence from say-on-pay in the United States. *Journal of Accounting and Public Policy, 35*(1), 19–42. https://doi.org/10.1016/j.jaccpubpol.2015.08.003

Lang, M., & Lundholm, R. (1993). Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research, 31*(2), 246–271. https://doi.org/10.2307/2491273

Leuz, C., & Verrecchia, R. E. (2000). The economic consequences of increased disclosure. *Journal of Accounting Research, 38*(3), 91–124. https://doi.org/10.2307/2672910

Liu, C., Shi, W., & Wei, K. J. K. C. (2021). CEO expertise and the design of compensation contracts: Evidence from generalist versus specialist CEOs. *Journal of Management Accounting Research, 33*(3), 97–119. https://doi.org/10.2308/JMAR-19-019

Lozano-Reina, G., & Sánchez-Marín, G. (2020). Say on pay and executive compensation: A systematic review and suggestions for developing the field. *Human Resource Management Review, 30*(2), Article 100683. https://doi.org/10.1016/j.hrmr.2019.01.004

Lozano-Reina, G., Sánchez-Marín, G., & Baixauli-Soler, J. S. (2022). Say-on-pay voting dispersion in listed family and non-family firms: A panel data analysis. *Journal of Family Business Strategy, 13*(1), Article 100423. https://doi.org/10.1016/j.jfbs.2021.100423

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83–104. https://doi.org/10.1037/1082-989X.7.1.83

Myers, M. (2011). The perils of shareholder voting on executive compensation. *Delaware Journal of Corporate Law, 36*(2), 417–461. https://core.ac.uk/reader/228616770

Omar, A., Sun, H.-L., & Tang, A. P. (2022). Say on pay votes, subsequent firm performance, and CEO risk-taking behavior. *Journal of Corporate Accounting and Finance, 33*(4), 9–21. https://doi.org/10.1002/jcaf.22559

Omar, A., Tang, A. P., & Cong, Y. (2021). Corporate governance, CEO turnover and say on pay votes. *Accounting Research Journal, 34*(6), 580–596. https://doi.org/10.1108/ARJ-11-2019-0207

Orthaus, S., Pelger, C., & Kuhner, C. (2023). The eternal debate over conservatism and prudence: A historical perspective on the conceptualization of asymmetry in financial accounting theory. *Contemporary Accounting Research, 40*(1), 41–88. https://doi.org/10.1111/1911-3846.12812

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. https://doi.org /10.3758/BRM.40.3.879

Richardson, V. J. (2000). Information asymmetry and earnings management: Some evidence. *Review of Quantitative Finance and Accounting, 15*(4), 325–347. https://doi.org/10.1023/A:1012098407706

Schouten, M. C. (2010). The mechanisms of voting efficiency. *Columbia Business Law Review, 2010*(3). https://doi.org/10.7916/cblr.v2010i3.2930

Semler-Brossy. (2016). *2016 Say on pay report*. https://semlerbrossy.com/insights/2016-say-on-pay-report/

Spatt, C. S. (2007, April 20). *Shareholder voting and corporate governance: Economic perspectives.* Securities and Exchange Commission (SEC). https://www.sec.gov/news/speech/2007/spch042007css.htm

Securities and Exchange Commission (SEC). (2011, January 25). *SEC adopts rules for say-on-pay and golden parachute compensation as required under Dodd-Frank Act*. https://www.sec.gov/news/press/2011/2011-25.htm

Stathopoulos, K., & Voulgaris, G. (2016). The impact of investor horizon on say-on-pay voting. *British Journal of Management, 27*(4), 796–818. https://doi.org/10.1111/1467-8551.12172

Yu, F. (2008). Analyst coverage and earnings management. *Journal of Financial Economics, 88*(2), 245–271. https://doi.org/10.1016/j.jfineco.2007.05.008

Yu, L. (2006). Understanding information inequality: making sense of the literature of the information and digital divides. *Journal of Librarianship and Information Science, 38*(4), 229–252. https://doi.org/10.1177 /0961000606070600